

ABSTRACT

A strain sensor has a fiber Bragg grating fastened in a one-quarter circular arc to the strain sensing section of a strain sensor member. One end of the fiber Bragg grating is aligned in the longitudinal direction of the strain sensing section, while the other end is aligned at a right angle to the longitudinal direction. When longitudinal stress is applied, the fiber Bragg grating is elongated at one end and compressed at the other end, creating a high degree of chirp, thereby enabling strain to be measured with high sensitivity. The sensitivity is determined partly by Poisson's ratio, and thus is not limited by geometrical constraints on the strain sensing section.